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Board Governance Mechanisms and Sustainability Disclosure: A Moderating Role of Intellectual Capital

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1. Abstract

The purpose of this paper is to investigate the extent and determinants of sustainability disclosure practice in Nigeria. The second objective is to examine if the effectiveness of intellectual capital moderates the relationship between board governance mechanisms and sustainability disclosure. In the course of carrying out this research, content analysis was conducted to extract sustainability disclosure information from annual reports of 80 companies listed on Nigerian Stock Exchange. The study spanned from 2010-2015. Board size, board independence, board diversity and board meetings were considered as determinants of sustainability disclosure. The sustainability disclosure index and board governance measures were computed for estimation of the regression analysis. The percentages were used to describe the nature and extent of sustainability disclosure among the sampled companies. A multiple regression analysis was used to test the relationships specified in the study. The result of the descriptive analysis evidence a low-level disclosure of sustainability information in annual reports of companies. From the regression analysis, board size, board independence and board diversity were found to enhance the disclosure of sustainability information. However, board meeting was found to be insignificantly related to sustainability disclosure. The results also reveal that intellectual capital has a significant positive effect on the relationship between board size, board independence, board diversity and sustainability disclosure. However, intellectual capital does not seem to moderate the relationship between board meetings and sustainability disclosure. The findings from this study have both theoretical and practical implications.

Keyword: Board Characteristics, Corporate Governance, Sustainability Disclosure, Intellectual Capital, Stakeholders.

1.0 Introduction

Sustainability reporting is a form of corporate self-regulation integrated into business models with the view to serve both social and environmental dimensions of business (Cormier, Ledoux, & Magnan, 2011). The main motive for corporate sustainability reporting is to legitimize companies' operation and to justify their continued existence (Daub, 2007). Companies disclose sustainability information to acknowledge societal concerns and to maintain positive relationships with key stakeholders. In this circumstance, companies need to achieve an economic performance that ensures adequate return on investment, while considering the social and environmental implications of their actions. Interestingly, many organizations have achieved such functions through matching of social performance initiatives with the main corporate strategic decisions. This is vital as corporate performance will be assessed using both the traditional (economic) performance indicators and the extent of commitment to sustainability performance (Aguilera, Rupp, & Williams, 2007). In this way, companies will be able to evaluate the effect of their decisions on the shareholders and also on other diverse stakeholders, including employees, customers, suppliers and the community as a whole.

Sustainability reporting practices have witnessed a tremendous increase and its notion broadened considerably (Cho, Michelon, Patten, & Roberts, 2015). This happens, because companies are under more public scrutiny worldwide than ever before and are pressured to provide information on their sustainability practices (Rao, Tilt, & Lester, 2012). For this reason, reporting on companies' sustainability activities is increasingly becoming vital for businesses to demonstrate their commitment to social and environmental issues. However, despite the successes recorded in sustainability reporting practice, significant discrepancies were noticed in practice which relates to both the content and the quality of reports among companies at various domains across the globe (Fortanier, Kolk, & Pinkse, 2011). In Nigeria, sustainability reporting is a voluntary exercise with no single unified framework that guides its implementation. The practice is mostly characterized by absent of enforcement and inadequate legislation. Similarly, the legal backing system suffers from weakness in compliance and enforcement, which invariably affect the process of sustainability disclosure application (Echefu & Akpofure, 2002). The defect in Nigeria's sustainability reporting practice was reported by Ademigbuji (2014). Among other things, the study reveals that inadequate legislation is the foremost problem confronting sustainability practice in Nigeria. The reason behind this stems from lack of political will and laxity on the part of the

authorities to entrench the initiative within the Nigerian business environment.

Another issue identified as a challenge confronting sustainability reporting in Nigeria is the lack of much appreciation of building businesses that creates a sustainable environment. In addition to this, most Nigerian indigenous companies view sustainability reporting as merely a corporate philanthropy or a mechanism for strengthening the relationship with host communities. Many see sustainability initiatives as a representation of much commitment of resources with no quantified returns. Others understood the practice as being an intensive and time-consuming task that requires gathering of information, writing content as well as securing internal sign-off at the topmost level of organizations (Usidamen, 2014). Therefore, in line with the recent trend in sustainability reporting across the globe, numerous interested parties are becoming more concerned about the magnitude, extensiveness and transparency of information disclosed. Thus, different constituents are demanding for more disclosure of social and environmental information. The situation is also the same in Nigeria context, various stakeholders are demanding for more companies' sustainability report. On the contrary, limited sustainability information is disclosed by companies which is not sufficient to enable users make meaningful decisions. This situation has given rise to an expectation gap between various stakeholders (Uwalomwa, 2011).

Based on the evidence mentioned above, the present study seeks to explore the extent of sustainability disclosure and also the factors that determine the disclosure of sustainability information in the annual report of Nigerian companies. Internal governance factors were selected as possible determinants of sustainability reporting. Board structure variables, including board size, board independence, board diversity and board meetings were favored. Board governance mechanisms were considered desirable because they are internal governance mechanisms that ensure close alignment of managers and shareholders interest. Therefore, it is expected that companies with more effective board structure will be particularly diligent in providing information on sustainability-related issues.

Nonetheless, a review of prior studies on board characteristics and sustainability disclosure shows that most of the studies have highlighted the recent contextual developments in corporate governance attributes and sustainability disclosure. Unfortunately, many of these studies were product of western economies (Burgwal & Vieira, 2014; Jamali & Mirshak, 2007; Wanderley, Lucian, Farache, & De Sousa Filho, 2008) or Asia Pacific (Abdullah, Mohamad & Mokhtar, 2011; Chau & Gray, 2010; Esa & Mohd-Ghazali, 2012; Handajani, Subroto, Sutrisno, & Saraswati, 2014; Shamil, Shaikh Ho & Krishnan, 2014). Limited studies were undertaken in Sub-Saharan African countries Nigeria inclusive. In addition, the few available literatures in Nigeria are mostly exploratory and survey studies (Ekwueme, Egbunike, & Onyali, 2013; Fadun, 2014; Leyira, Uwaoma, & Olagunju, 2011; Ngwakwe, 2009; Uzonwanne, Yekini, Yekini, & Otobo, 2014) and thus contained little or no quantifiable data (Innocent, Gloria, & Priscilla, 2014). By this prevailing situation, it's uncertain whether corporate governance and sustainability disclosure practiced in these countries are applicable in Nigeria and other sub-Saharan countries.

Besides, a review of the studies relating board governance attributes and sustainability disclosure present equivocal findings, as such, a definite conclusion was not reached. On this basis, some studies suggested that the inconsistencies may point to the possibility that some important moderating or intervening variables were overlooked. Accordingly, Wahba and Elsayed (2015) suggest testing the relationship indirectly by the introduction of a mechanism variable through which the relationship between board characteristics and sustainability disclosure could be enhanced. Based on this suggestion, the present study introduces intellectual capital as a moderating variable in the model. Intellectual capital refers to the package of useful knowledge which comprises of organizations' processes, technologies, patents, skills and information about customers, suppliers and stakeholders (Mushref, 2014).

Considering the significance of intellectual capital to companies' long-term viability, companies can leverage this intangible asset to improve sustainability disclosure for diverse users. Efficient application of intellectual capital processes could serve as a means of creating exceptional relationships between companies and their stakeholders which is most desirable in fulfilling stakeholders' expectations (Sachs, Post, & Preston, 2002). Accordingly, the feedbacks companies receive from different stakeholders will assist in understanding specific needs of their stakeholders. In this manner, companies' management can effectively understand the categories of sustainability practice best valued by stakeholders. Through this avenue, board characteristics mechanisms may likely have a positive significant influence on sustainability disclosure through intellectual capital interaction. This proposition remains unexplored in the context of this study and the world at large.

Therefore, this study extends prior research by investigating the relationship between board governance mechanisms and sustainability disclosure; and determined the influence of intellectual capital on the relationship between board governance mechanism and sustainability disclosure using a data sample of 80 Nigerian listed companies. Accordingly, this paper is structured as follows: section two contains a review of the prior literature, this includes the theories underpinning the study, the relationship between board characteristics and sustainability disclosure followed by hypothesis development. Section three discusses the methodology adopted by the study and section four presents the discussion of findings. Conclusion and recommendations are delineated in section four.

2.1 Literature Review

2.1.1 Theoretical Underpinning

The stakeholder theory is a key paradigm for explaining the relationship between board governance mechanisms and sustainability disclosure. The theory is seen as an integral part of sustainability reporting literature as it provides a better means of relating companies with their diverse stakeholders. The theory presumes companies as a nexus of contract between companies and their stakeholders. Companies have an extensive responsibility to different stakeholder groups, including suppliers, customers, employees, government and the communities. Therefore, conflicts between various stakeholders will likely have a negative impact on the capacity of companies to function effectively (Becker & Potter, 2002). Accordingly, stakeholder theory contributes to such debate by bringing supplementary business argument as to why companies must work toward achieving sustainable development. Stakeholder theory believes that companies should operate in a socially responsible manner towards satisfying the interest of diverse stakeholders, and the best way to achieve this is through sustainability reporting initiatives.

Stakeholder theory is equally fitting into the perspective of board governance processes. Board members are representative of shareholders whose responsibility is to ensure that the interest of all stakeholders are justly balanced. They are expected to ensure that companies discharge their broader responsibility and stakeholder accountability. For this reason, an effective board with the interest of all stakeholders will be able to convey information to entire stakeholder group informing them how well-managed their company is and that stakeholders interest is prioritized (Michelon & Parbonetti, 2010). Hence, board governance mechanisms being a key component of corporate governance attributes have the potential to enhance companies' sustainability practice.

Consistent with the theoretical views in prior corporate governance-sustainability disclosure research, the empirical findings between board governance attributes and sustainability disclosure present an equivocal results (Amran & Haniffa, 2011; Brammer & Pavelin, 2006; Cormier & Magnan, 2003; Haddock, 2006; Haniffa & Cooke, 2005; Monteiro & Aibar-Guzmán, 2010; Tagesson et al., 2009). The mixed results in prior research suggest a shift of focus from the usual direct relationship to indirect relationship using a contextual variable (Wahba & Elsayed, 2015). In response to this suggestion, the current study introduced intellectual capital as an interactive variable in the model. The aim was to observe whether the relationship between board governance mechanisms and sustainability disclosure can be strengthened with the inclusion of intellectual capital as a moderating variable. Accordingly, RBV theory was selected as an ideal proposition for explaining this relationship. The key tenet of the RBV theory is that companies compete on the basis of resources and capabilities and these resources and capabilities are heterogeneous and also differ across companies. Therefore, the moment the resources and capabilities are non-substitutable, inimitable, valuable and rare, a company will be able to achieve a sustainable competitive advantage (Passetti, Tenucci, Cinquini, & Frey, 2009).

Accordingly, intellectual capital is viewed as unique companies' resources that can be deployed to enhance the disclosure of sustainability information in annual reports of companies. Therefore, companies can efficiently utilize their knowledge assets to create a viable relationship with various stakeholders through proper communication and feedback mechanisms. In this way, companies can take advantage of the views and opinions of their stakeholders with the aim of channeling their sustainability initiatives to suit the interest of diverse stakeholders. Through this medium, companies can foster a good and cordial relationship with their employees, improve their brand image and public reputation. Based on this view, intellectual capital is likely to play an interactive role in the relationship between board governance mechanisms and sustainability disclosure. Hence, RBV theory is capable of explaining this relationship.

2.1.2 Review of Related Literature and Hypothesis Development

The literature on corporate sustainability disclosure demonstrates that there are differences in the level of sustainability reporting among companies and

that board governance mechanisms are key determinants of corporate sustainability disclosure (Al-bassam, Ntim, Opong, & Downs, 2015). Sustainability reporting involves discretionary allocation of corporate resources toward improving social welfare and enhancing relationships with key stakeholders. It is a practice that prevails on companies to disclose their duties and responsibilities to various stakeholders. Sustainability reporting enables companies to improve their reputation with a broad range of stakeholders including suppliers, customers, investors, bankers and competitors. It provides the opportunity for re-configuring competitive position of companies and develops distinctive and dynamic resources and capabilities. Companies disclose sustainability information for the purpose of transparency and to meet the needs of diverse stakeholders. Such information is also disclosed to narrow the information asymmetry between management and their stakeholders (Ho & Taylor, 2013). Therefore, companies with effective sustainability disclosure initiatives promote not only ethics, transparency and accountability but also corporate performance. Accordingly, companies can reap benefits from a successful implementation of sustainability initiatives. Benefits such as better economic performance, improved firm's reputation, attracting better investors and high morale among employees (Ling & Sultana, 2015).

However, sustainability reporting is closely aligned with companies' governance processes. The two are mostly considered as complementary mechanisms that enhance stakeholder management. Corporate sustainability disclosure is also an outcome of improved governance structure. An effective sustainability disclosure practice is based on good standards of corporate governance. Corporate governance improves companies' stakeholder relationship by fostering corporate sustainability. It improves the social picture of companies and reduces uncertainty which often leads to achieving efficient alignment of company's financial goals and societal values (Iatridis, 2013). Accordingly, a corporate board with attributes of good governance structure is more likely to demonstrate corporate social and environmental responsibility. Particularly, companies with desirable board governance structure ensure corporate effectiveness and strategic development which often lead to better corporate sustainability performance. Therefore, considering the significance of board governance mechanisms to corporate sustainability disclosure, this study employed four board governance variables as key determinants of sustainability disclosure, this includes board size, board independence, board diversity and board meetings. The next section reviewed the prior literature on the selected board governance variables and sustainability disclosure.

2.1.2.1 Board Size

The size of corporate board may affect the manner in which corporate directors conduct their responsibilities (Fama & Jensen, 1983). This implies that the number of directors on corporate board may influence the ability of the board to monitor and assess management practices and procedures. This including level of sustainability information disclosed by companies. Accordingly, several arguments arise in the literature on whether the size of corporate boards determines the disclosure of companies' sustainability information. This argument always prevails due to the strategic posture of board members in companies' policies and strategies. On this basis, one stream of research supported a larger board and concluded that larger boards have a positive influence on companies' sustainability disclosure.

Among others, Akhtaruddin, Hossain, Hossain, and Yao (2009), Chang, Oh, Jung and Lee (2012), Esa & Mohd-Ghazali (2012) provide evidence of a positive relationship between board size and sustainability. Based on the positive findings, Esa & Mohd-Ghazali (2012) argued that larger boards offer more knowledge and experience and also put forward different ideas in board deliberations. Similarly, Haji & Mohd-Ghazali (2013) concluded that large board size is connected with increased monitoring capacity which could lead to sharing of a variety of experiences in boardrooms. Besides, a corporate governance-sustainability disclosure study conducted on a sample of 50 Pakistan companies by Lone, Ali, and Khan (2016) established that a large number of directors on corporate boards brings the experiences of diverse backgrounds which affect the level of sustainability reporting in companies. More recently, Sadou, Alom, and Laluddin (2017) highlighted that larger boards are more effective and have greater influence over companies' sustainability disclosure.

On the other side, some literature provided evidence of a negative association between board size and sustainability disclosure. Accordingly, Uwuigbe et al. (2011) provide evidence of a negative relationship between board size and sustainability disclosure in the context of Nigeria. Said, Zainuddin and Haron (2009) evidenced a significant negative relationship between board size and sustainability disclosure, advocating that large board size result to ineffectiveness in communication coordination and decision-making. However, a study conducted on a sample of public listed Indonesian companies by Siregar and Bachtiar (2010) found a non-linear relationship between board size and sustainability disclosure.

The study noted that a large board would be able to exercise better monitoring, but too large board will render the monitoring process ineffective.

In Nigeria, the rule guiding the size of a corporate board is spelled out in the country's corporate governance code. Specifically, the revised code of corporate governance 2011 stipulates that corporate board size should be relative to the complexity and scale of companies' operations. The code further specifies that the number of directors in company's board should not fall below five (5). However, the governance code did not specify the maximum number of directors a company should appoint for any specified period. Therefore, considering the provision in Nigeria's revised corporate governance code and in relation to the provision of stakeholder theory which supports larger size board, this study expects board size to have a positive influence on the level of sustainability disclosure. Accordingly, the study hypothesized that;

H_1: Board size has a significant positive influence on the level of sustainability disclosure.

2.1.2.2 Board Independence

Directors on corporate boards have different values, interest and time horizons (Post, Rahman, & Rubow, 2011). Independent directors, in particular, appear to be less attached to economic performance and more concerned with company's sustainability initiatives. They are more likely to support investments in the long-term sustainability of a company even if such investment conflict with short-term economic performance goals (Johnson & Greening, 1999). This is obvious as independent directors may feel attending to sustainability reporting issues is in the best interest of all stakeholders. However, despite several support for independent directors on corporate boards, debates were still ongoing whether independent directors are able mechanism for aligning managerial interests with those of shareholders and also their value creation merits on sustainability reporting investment.

A study conducted on a sampled US firms by Zhang, Zhu, and Ding (2013) claims that independent directors have more diverse background and represents external stakeholders of companies. As such, they have a stronger orientation towards sustainability reporting practice than their counterparts in the boardroom. Accordingly, Zhang et al. provide empirical evidence showing that independent directors have a positive influence on companies sustainability reporting. Similar findings were reported by Huang (2010), Khan (2010), Jo and Harjoto (2012), Sharif and Rashid (2014), Kaur, Raman and Singhania (2016). These studies indicated a positive link between board independence and sustainability reporting. Based on a positive result, Huang (2010) concluded that independent directors act as a monitoring mechanism that ensures companies are properly managed by corporate management and also work towards enhancing corporate image and sustainability.

Conversely, Michelon and Parbonetti (2010), Janggu, Darus, Zain and Sawani (2014) provided evidence of an insignificant relationship between independent directors and sustainability disclosure. This suggests that board independence does not seem to play a vital role in improving the level of sustainability disclosure in companies' annual reports. Based on the insignificant result observed, Abdullah et al. (2011) affirmed that independent directors are not effective in discharging their duties, talk less of going against other members of the boards. Additionally, Al-Moataz and Hussainey (2012) reiterated that higher number of independent directors on companies' boards leads to less effective board monitoring and equally lower levels of corporate transparency.

From the perspective of stakeholder theory, managers are perceived as moral agents other than opportunistic individual. As such, their role is to achieve a balance between the interest of diverse stakeholders (Shankman, 1999). Therefore, it is presumed that a corporate board with a higher proportion of independent directors will ensure improved board monitoring quality and also work toward satisfying the needs of all stakeholders. Therefore, based on stakeholder theory's declaration and the positive result observed in the extant literature, this study anticipates a significant positive relationship between board independence and sustainability disclosure. This implies that with a higher proportion of independent directors on a corporate board, a company will exhibit more concern and give more attention to sustainability disclosures. Accordingly, the following hypothesis is formulated for the guidance of the study.

H_2: Board independence has a significant positive influence on level of sustainability disclosure

2.1.2.3 Board Diversity

A growing body of contemporary research on boards and board roles suggested that diversity in the boardroom has the potential to increase board effectiveness and firm performance (Carter, Simkins, & Simpson, 2003). Board diversity in this context refers to the presence of women directors on corporate boards. Board diversity facilitates in-depth discussions and alternative perspectives and is more likely to be beneficial in the course of uncertainties and complex decisions. A board with

female members is more able to integrate the interest of multiple stakeholders, including employees, customers, suppliers and the communities with the performance-based interests of shareholders (Harrison & Coombs, 2012). Recruitment of more women into corporate boards is likely to bring about diversity of opinions and perspective to board discussion including deliberations on sustainability disclosure issues. Therefore, a board with greater diversity is likely to increase companies' ability to recognize the need and interest of various stakeholder groups, identify best strategies that will align the varied interests and to manage potential conflict between shareholders (Harjoto, Laksmana, & Lee, 2014).

Based on the different perceptions in prior literature, several studies attempted to examine the impact of board gender diversity on companies' sustainability disclosure. Back in 2008, Barako and Brown conducted a study on Kenyan Banks to determine the influence of gender on corporate social reporting. The study's findings reveal that a higher representation of women in corporate board significantly increases companies' social disclosure. Similarly, Setó-Pamies (2013) argued in favor of board diversity that, the presence of women in corporate boardrooms improves the relationship with stakeholders, increase accountability, shows greater concern for the environment and prompts more ethical behavior. More recently, Rao and Tilt (2015) conducted a comprehensive review of prior board diversity and sustainability disclosure literature. Most of the reviewed studies suggested that diverse boards have a significant positive influence on the level of sustainability disclosure. Based on the review, Rao and Tilt concluded that the impact of having females on corporate board is likely to be minimal except when there is a critical mass. However, from the viewpoint of stakeholder theory, the presence of females in corporate boardroom is a signal to companies' stakeholders that, such company is socially responsible and also pays more attention to the needs of diverse stakeholders (Bear, Rahman, & Post, 2010).

In the context of Nigeria, culture plays a pivotal role in restricting women's participation in corporate boards. However, this perception is gradually fading out as such the significance of gender diversity is nowadays becoming obvious and visible (Şener & Karaye, 2014). This was made possible following some strong measures put in place by key regulatory agencies to mitigate gender imbalance in corporate boards. An example is the recent measure put in place by the Central Bank of Nigeria (CBN) to boost female representation in board formation in the country. The CBN through its banker's committee imposes mandatory quota target on commercial banks. The aim is to increase women's representation on companies' boards to 30 percent (Şener & Karaye, 2014). Therefore, considering the recent changes in Nigerian gender diversity policies and also the view of stakeholder theory which supports a positive association between board diversity and sustainability disclosure, this study expects board diversity to have a positive and significant impact on companies' sustainability disclose. Hence, the following hypothesis is postulated:

H_3: Board diversity has a significant positive influence on level of sustainability disclosure

2.1.2.4 Board Meetings

Board meeting frequency reflects the diligence and vigilance of corporate board in conducting their monitoring roles. The frequency of board meeting is a significant proxy for measuring the effectiveness and intensity of board monitoring and discipline (Vafeas, 1999). However, there are two opposing views on the prospective impact of board meeting on corporate non-financial performance. A group of scholars contended that frequency of board meeting represents board effectiveness and also facilitate better supervision of company's operations and motivates increased transparency in companies (Lipton & Lorsch, 1992). While others are of the view that, the frequency of board meetings symbolizes inefficacy of directors, which limits directors' performance (Vafeas, 1999). However, sustainability reporting is known to be at the center of companies' board meeting, as companies integrate social concern in their business operations. For this reason, the effect of board meetings on corporate sustainability reporting was investigated by several studies. However, the findings were conflicting.

Barros, Boubaker, and Hamrouni (2013) found a significant positive relationship between the frequency of board meetings and sustainability disclosure among listed firms in France. A similar result was reported by Staden and Chen (2010) which shows that frequency of board meetings is a symbolic representation of an enhanced sustainability reporting disclosure. Jizi, Salama, Dixon, and Stratling (2014) reveals a positive impact of board meetings on sustainability disclosure performance. In contrast, Rodríguez-Ariza, García-Sánchez, and José-Valeriano (2011) provide empirical evidence supporting an insignificant relation between board meetings and sustainability disclosure. Suggesting that there is no need for frequency of board meetings as it seems not to have a substantive influence on companies' sustainability practice. A similar study by Giannarakis (2014) noticed that board of directors are only responsible for companies' sustainability

disclosure at policy level instead of implementation level. As such, board meeting will not be able to play a critical role in the disclosure of companies' sustainability information. Additionally, Ayoib and Nosakhare (2015), Dienes and Velte (2016) concluded that a higher number of board meetings would not necessarily translate to better sustainability reporting.

In Nigeria, the revised corporate governance code 2011 made a pronouncement on the significance of board meetings in enhancing the effectiveness of board functions. Accordingly, the code stipulates that corporate board should meet regularly. The board should disclose the number of board meetings held within the year and the detail attendance of each director in respect of meetings held. The code specifically requires companies to hold at least four board meetings in a year, once every quarter. Building on this argument, this study expects a positive association between board meetings and sustainability disclosure. Accordingly, it is hypothesize that increased in frequency of board meetings would lead to higher disclosure of sustainability information in annual reports of companies.

H_4: Board meeting has a significant positive influence on the level of sustainability disclosure

2.1.2.5 Moderating Influence of Intellectual Capital on Board Size and Sustainability Disclosure

Corporate board is considered among the primary internal governance mechanism (Brennan, 2006). The board is recognized as a major decision-making group that acts on behalf of shareholders. A well-constituted board with optimum number of directors is likely to be effective in monitoring the activities of corporate management and in driving value enhancement for shareholders (Kumar & Singh, 2013). Different opinions are bound on what constitutes an optimal size of corporate boards. However, most studies argue in favor of larger boards maintaining that, increased in the size of corporate board lead to intensity in board monitoring and efficiency. This happened because, a large number of directors provide the diversity and experience required to control corporate activities often proposed by the board (Sánchez, Domínguez, & Álvarez, 2011). Larger boards exercise better monitoring which enhances the exchange of innovative ideas and experiences (Esa & Mohd-Ghazali, 2012; Giannarakis, 2014).

In a different perspective, larger board size offers diverse knowledge and expertise which substantially affect the level of sustainability disclosure in companies. Such constituted boards enable companies to bring critical, diverse resources and experiences onto the board which effectively enhance board decision-making processes. Therefore, with a large board size, board members can easily assist by linking companies with the external environment and securing critical resources (Martinez-ferrero, Rodriguez-Ariza, & Garcia-Sanchez, 2017). In such a case, intellectual capital being a critical resource can be deployed to achieve this objective. Larger boards are the most likely to increase companies' ability to secure critical resources from their environment including intellectual capital (Abeysekera, 2010). Therefore, with efficient application of intellectual capital processes and capabilities, board size can add to the diversity of perspectives by way of providing greater choices among solutions and decision criteria (Abeysekera, 2010). This will likely help in achieving corporate sustainability goals and objectives, including enhancing company's legitimacy and its corporate image within the society. Based on this reasoning, intellectual capital is likely to enhance the relationship between board size and sustainability disclosure. Thus, the present study hypothesized that:

H_5: Intellectual capital positively moderates the relationship between board size and sustainability disclosure.

2.1.2.5. Moderating Influence of Intellectual Capital on Board Independence and Sustainability Disclosure

Board independence is a characteristic of the board that perfectly represent the interest of stakeholders (Garcia-Sanchez, Cuadrado-Ballesteros, & Sepulveda, 2014). Independent directors are professionals outside the firm, whose prestige is strongly align with their actions on the board. Their main responsibility is to demonstrate the fulfillment of rules and responsible behaviors in companies (Haniffa & Cooke, 2005). They guarantee necessary checks and balances to improve board effectiveness in controlling companies' activities (Michelon & Parbonetti, 2012). Aside, independent directors increase the focus on sustainability issues and information disclosure (Barako & Brown, 2008). They ensure that companies pursue interests of diverse stakeholders other than just shareholders. Independent directors exhibit greater concern for sustainability issues by being more sensitive to stakeholders' demands, thereby ensuring the legitimacy of their actions and resources (Martinez-Ferrero et al., 2017).

However, prior studies provided evidence that board independence influences the disclosure of companies' sustainability information. However, the impact of board independence on sustainability reporting can be improve with efficient utilization of intellectual capital strategies and processes.

Intellectual capital strategies such as human relations, feedbacks, technologies, R&D can be deployed by independent directors to support socially related disclosure (Al-Musali & Ismail, 2015). Accordingly, investment in intangible assets such as knowledge and skills is more likely to offer creative solutions that will enhance the disclosure of sustainability disclosure information. Therefore, a prudent investment in intellectual capital processes will likely increase the efficiency of sustainability reporting practices. Based on the points above, the present study anticipates that the relationship between board independence and sustainability disclosure will be improve with the application of intellectual capital. Accordingly, it is hypothesize that:

H_6: Intellectual capital positively moderates the relationship between board Independence and sustainability disclosure.

2.1.2.6 Moderating Influence of Intellectual Capital on Board Diversity and Sustainability Disclosure

Board gender diversity is considered as one of the most significant human capital attributes that relate to companies' performance (Carter, D'Souza, Simkins, & Simpson, 2010; Toumi, Benkraiem, & Hamrouni, 2016). Female directors play prominent roles in board monitoring and effectiveness. They are outstanding in board processes due to their active participation as members of different committees (Adams & Ferreira, 2009). Female board members improve decision-making processes in boardrooms (Bilmoria, 2000). They have better ability to pay more attention and therefore have a greater sense of corporate sustainability initiatives (Nielsen & Huse, 2010). Therefore, the presence of females in corporate board is associated with a stronger orientation towards companies' sustainability disclosure (Ibrahim & Angelidis, 2011). It is linked to the broader perspective of supporting corporate board to serve the needs of various stakeholders.

Besides, board diversity promotes greater innovation and flexibility in the decision-making process of companies. They help in stimulating the creation of high-quality, innovative solutions through interactions. In the process of such interactions, a diverse board member will be able to identify, synthesize and discern various views (Berezinets, Garanina, & Ilina, 2016). Also, board diversity enhances corporate boards' ability to instigate more comprehensive strategies, policies, activities, and projects that create attractive working conditions for a broader spectrum of potential employees (Al-Musali & Ismail, 2015). In this way, they improve companies' understanding of perceptions and the needs of customers and employees. Promote the willingness to change, adapt and strengthen companies' relationship with both internal and external stakeholder groups (Al-Musali & Ismail, 2015; Swartz & Firer, 2005). All of these strategies are intellectual capital approaches that are often adopted by a diverse board to achieve a successful sustainability disclosure practices in companies. Accordingly, intellectual capital is likely to serve as a moderating variable on the relationship between board diversity and sustainability disclosure. Therefore, it is hypothesized that:

H_7: Intellectual capital positively moderates the relationship between board diversity and sustainability disclosure.

2.1.2.7 Moderating Influence of Intellectual Capital on Board Meetings and Sustainability Disclosure

Board meeting frequency is an important corporate governance mechanism that ensures board related issues are well discuss and board members are given the opportunities to confer and to set strategies (Vafeas, 1999). The board meeting is a key dimension of board operations and also an indicator of effort put in place by corporate directors. It is considered as a resource that determines board diligence which in turn enhance board effectiveness. The frequency of board meetings is a factor that is likely to contribute to the effectiveness of boards' oversight function, specifically, in matters that relates to the financial reporting process and transparency in corporate reporting (Al-Ebel, 2014). Therefore, an active board that meets more frequently is more likely to perform its duties to satisfy the interest of shareholders. Such board is likely to have a better capacity to put more effort in monitoring the integrity of corporate reporting, thereby improving its disclosure (Vafeas, 1999).

Besides, board meeting is also an important factor that determines the disclosure of sustainability information in annual reports of companies. It serves as a symbolic representation of a better corporate sustainability disclosure. The frequency of board meetings provides more capacity and opportunities to corporate board in divulging more information that will be realize by stakeholders about the efficiency of the board (Jackling & Johl, 2009; Lipton & Lorsch, 1992). Board holds frequent meetings to handle business operations and disclose companies' sustainability information to effectively satisfy diverse stakeholders (Naseem, Riaz, Rehman, Ikram, & Malik, 2017). Therefore, companies with higher frequency in board meetings are more effective in coordinating and facilitating adequate response to negative impacts on the environment. Accordingly, frequency of board

meetings serve as a device for diminishing problems of information asymmetries between managers and diverse stakeholders (Kanagaretnam, Lobo, & Whalen, 2007; Shan, 2013).

However, prior empirical research on the relationship between the frequency of board meetings and companies' sustainability disclosure evidenced inconclusive findings. These imply that there is evidence in support of the positive impact of board meetings on sustainability disclosure. Still, there are also suggestions to the contrary. Accordingly, the present study suggests testing the relationship indirectly using intellectual capital as a contextual variable. Intellectual capital is one of the companies' intangible resource that varies companies' uniqueness and capabilities. Frequent board meetings can improve the innovative performance of companies since it increases the likelihood of consensus among directors and helps in handling uncertainties (Wincent, Anokhin, & Örtqvist, 2010). Therefore, with frequent meetings, corporate board is more likely to provide effective management control of intellectual capital which is likely to aid more disclosure of sustainability information (Marques, Jose, Simon, & Caranana, 2006). Besides, frequency of board meetings also helps corporate board members to evaluate research and development projects thoroughly. It enables the board to monitor and supervise progress and to take necessary action for the project with a slow pace of progress (Rabi, Zulkafli, & Haat, 2010). The preceding strategies mentioned above ultimately help in improving intellectual capital and in turn enhance the disclosure of sustainability information. Accordingly, this study hypothesizes that intellectual capital will moderate the relationship between board meetings and sustainability disclosure. Hence, the following hypothesis is postulated for the guiding of the study.

H_8: Intellectual capital positively moderates the relationship between board meetings and sustainability disclosure.

3.1 Research Method

3.1.1 Data Collection

The companies selected for analysis were those listed on the Nigerian Stock Exchange (NSE). The data for this study was derived from companies' annual reports and stand-alone sustainability reports. The study's population is the entire companies listed on the main market of the NSE. As of 30 June 2015, there were 188 active listed entities from 11 different sectors. The number of companies from various sectors are as summarized in Table I. However, to determine the appropriate sample size, filtering criteria previously used by Hung and Subramanyam (2007) was adopted for the study. The criteria include, a company must be listed and remain active in the market within the study period, and a company must have either corporate annual reports or stand-alone sustainability report for all years selected for the study. Out of the 188 companies, 80 companies scaled the filtering test and made up the sample. The remaining 108 companies were either not listed or de-listed within the study period or do not have complete annual reports for all the years (2010-2015). The computation of the sample size is as depicted in Table II.

Table I: *NSE Main Market Sector Distribution*

Industry	Number of Companies	Percentage	Observations
Agriculture	5	2.66	25
Conglomerate	6	3.19	30
Construction/real estate	9	4.79	45
Consumer goods	28	14,89	140
Financial services	57	30.32	285
Healthcare	11	5.85	55
ICT	9	4.79	45
Industrial goods	21	11.17	105
Natural resources	5	2.66	25
Oil and gas	14	7.45	70
Services	23	12.23	115
Total	188	100	940

Source: *Nigerian Stock Exchange Website*

Table II: *Frequency and percentage of sample companies by sector*

S/N	Industry	Number of Companies	Percentage	Observations
1	Agriculture	3	3.75	18
2	Conglomerate	3	3.75	18
3	Construction/real estate	2	2.5	12
4	Consumer goods	11	13.75	66
5	Financial services	36	45	216
6	Healthcare Services	3	3.75	18
7	ICT	2	2.5	12
8	Industrial goods	6	7.5	36
9	Natural resources	1	1.25	6
10	Oil and gas	6	7.5	36
11	Services	7	8.75	42
-	Total	80	100	480

3.1.2 Variables Measurement

A content analysis was used to extract information on companies' sustainability disclosure using an un-weighted disclosure index. Based on the un-weighted disclosure index, "1" indicates the presence of sustainability information and "0" otherwise (Chau & Gray, 2002; Haniffa & Cooke, 2005; Mohd Ghazali, 2007; Monteiro & Aibar-Guzmán, 2010). The nature and trend of sustainability disclosure were assessed using a sentence-counting method similar to Michelon and Parbonetti (2010). GRI G4 standard was used as the checklist. Based on the checklist, social disclosure has a total of 48 points while the environmental disclosure has a maximum of 34 points. Therefore, each annual report has the chances of scoring a minimum of 0 and a maximum of 82 points for both social and environmental disclosures. The same content analysis approach was also used to extract information on intellectual capital disclosure in annual reports of sampled companies. This study adopts an intellectual capital disclosure checklist previously used by Haji and Mubaraq (2012). The items in the checklist were categorized into three, internal capital, external capital and human capital. The total number of items in the checklist is 44 of which, ten items belong to internal capital disclosure, 16 items represent external capital disclosure and the remaining 18 items are human capital disclosure, refer appendix II for details. Data related to corporate governance attributes (board size, board independence, board diversity and board meetings) and control variables (firm performance, firm size, industry type, liquidity, leverage) were hand collected from the sampled companies' annual reports.

3.1.3 Models and Techniques for Analysis

This study adopted a panel data approach in analyzing the data collected from companies' annual reports. Both descriptive and inferential analysis were performed using Stata 13 analytical software. A descriptive statistics was performed basically to summarize the data into a manageable form with the view to make it more concise and to provide a summary of the sample and measurements. A multiple regression was applied to test the hypothesis based on the research models specified below. The present study controlled for other determinants of sustainability disclosures to avoid biased results in the empirical regression models, this includes firm performance, firm size, industry type, liquidity and leverage. Accordingly, model I was postulated to test the direct effect of board governance mechanism (board size, board independence, board diversity and board meetings) on the level of sustainability disclosure. The coefficients β_1 to β_4 are independent variables in the model. They are expected to be positive and significantly related to the level of corporate sustainability disclosure. Coefficients β_5 to β_9 are the control variables; there are also expected to be positive and significantly associated with sustainability disclosure. However, model II is proposed to test the indirect effect of intellectual capital on board governance mechanisms and sustainability disclosure. Moderation model tests whether the prediction of a dependent variable by independent variable differs across the level of a third variable. Moderation effect tends to exist when the interaction term explains a statistically significant amount of variance in the dependent variable. In this case, this study will test to determine whether inclusion of intellectual capital as a moderator variable will lead to a significant variation in the effect of independent variables on the dependent variable.

Model I:

$$SRD_{it} = \alpha + \beta_1 BSIZE_{it} + \beta_2 BIND_{it} + \beta_3 BDIV_{it} + \beta_4 BMEET_{it} + \beta_5 FPM_{it} + \beta_6 CSIZE_{it} + \beta_7 INDUS_{it} + \beta_8 LIQ_{it} + \beta_9 LEV_{it} + \varepsilon_{it}$$

Model II:

$$SRD_{it} = \alpha + \beta_1 BSIZE_{it} + \beta_2 BIND_{it} + \beta_3 BDIV_{it} + \beta_4 BMEET_{it} + \beta_5 ICD_{it} + \beta_6 SIZE_{it} * ICD_{it} + \beta_7 BIND_{it} * ICD_{it} + \beta_8 BDIV_{it} * ICD_{it} + \beta_9 BMEET_{it} * ICD_{it} + \beta_{10} CSIZE_{it} + \beta_{11} INDUS_{it} + \beta_{12} LIQ_{it} + \beta_{13} LEV_{it} + \varepsilon_{it}$$

Where:

β0 = Intercept estimates

SRD = Sustainability Disclosure (Aggregate score of social and environmental disclosure)

ICD = Intellectual capital disclosure (Aggregate of internal, external and human capital disclosure)

BSIZE= Board Size (Total number of directors on corporate board)

BIND= Board Independence (Proportion of independent directors to total number of directors on board)

BDIV = Board Diversity (Number of female directors on corporate board)

BMEET=Board Meetings (Number of meetings held by board of directors in a year)

FPM = Financial Performance proxy by ROA (Profit after taxation divided by total assets)

CSIZE = Firm Size (Natural logarithm of total assets)

INDUS = Industry Type (1 for companies in highly sensitive industries and 0 otherwise)

LIQ = Liquidity (current assets divided by current liabilities)

LEV = Leverage (total debt to total assets)

ε = Error term.

4.1 Findings and Discussions

4.1.1 Descriptive Analysis

Table II contains the description of the sampled companies based on their varied sectors. A total of 80 companies were selected as sample yielding a total of 480 firm-year observations. Most of the selected companies belong to consumer goods (13.75 percent), financial services (45 percent) and general services (8.75 percent). 2.5 percent each of the sampled companies were from construction/real estate and ICT. Agriculture, conglomerate and health care services constitute 3.75 percent each. 7.5 percent each represented oil and gas and industrial goods. Natural resources only represent 1.25 percent of the total sample. Aside, the descriptive statistics for the extent of sustainability disclosure was discussed in this section. The disclosure scores were summarized based on social and environmental disclosures and subsequently aggregated as sustainability disclosure. The disclosure items were summarized based on items category, their sub-categories, the respective scores for each sub-category and the percentage scores. The GRI G4 standard checklist was used for scoring items in companies' annual reports.

Information on companies' socially related disclosure is contained in Appendix 1A. Based on the information extracted from sampled annual reports, a total of 499 annual reports representing 99.8 percent disclosed information on employment, training and education as well as community involvement. These items were the highest socially related items disclosed in companies' annual reports. Disclosure on companies' non-discrimination policies was the second most disclose item with 498 scores representing 97.5 percent of the total sampled annual reports. Occupational health and safety were the next most disclosed item. The third most disclosed item is diversity and employees' equal opportunities. In contrast, information on supplier assessment for impact on society, information on suppliers' human right assessment, customers' privacy and marketing

communications are the least disclosed socially related items. All of the preceding items contained no evidence of disclosure in companies' annual reports or stand-alone reports.

An assessment of the sampled annual reports also revealed evidence of companies' commitment to environmental issues in Nigeria. However, most companies concentrate more on socially related disclosure, thereby neglecting most of the environmentally related disclosure. Concerning the information sourced from companies' annual reports as delineated in Appendix 1B. 19.1 percent of the total sampled annual reports disclose information on reduction of energy consumption. 17.3 percent on material used and recycled. 9 percent disclose information on reduction of greenhouse gas emissions and 5. 8 percent on volume of water recycled and reused. However, few companies provide information on the negative environmental impact on the supply chain (0.6 percent). While 0.2 percent provided information on the number of grievances about environmental impacts (0.2 percent), 1.7 percent disclose information on significant fines and sanctions for non-compliance with environmental laws. A close look at companies' annual reports indicates less to desire regarding companies' commitment to safer environmental practices and disclosures. The overall environmental disclose information presented in sampled annual reports are grossly inadequate and archaic for effective environmental monitoring. Very few companies have the culture of presenting adequate information to stakeholders. Information that will reasonably be considered informative about companies' commitment to environmental safety and necessary actions taken to prevent companies' negative impact on the environment.

Table III present descriptive statistics for the dependent, independent, moderating and control variables used in the study. The descriptive statistics were presented based on how the study's variables were tested in the regression analysis. The disclosure score for sustainability disclosure (SRD) ranges in between 8 to 53 percent over the years of this study (2010-2015). The highest average score of 14.48 percent was recorded in 2015. Therefore, the average disclosure score despite being the highest score over the period of this study is still considered low going by the antecedent of sustainability disclosure in some developing countries (Odera, Scott, & Gow, 2016; Uwuigbe & Jimoh, 2012). A possible explanation for the low disclosure of sustainability information in the sampled annual reports could be due to the voluntary nature of the practice in the country. In Nigeria, companies are not obligated to report sustainability information in their annual report; they are only encouraged to do so in line with the global best practices. Companies disclose sustainability information based on their discretion. This scenario may have accounted for the low disclosure of sustainability information in annual reports of companies.

As reflected in Table III, the average BSIZE of listed companies in Nigeria was 10 members over the six-year period (2010-2015). The minimum board size ranges in between 4 to 6 throughout this study, while the maximum size board had 20 directors. Similar numbers were reported by Ujunwa (2012) and Boubaker, et al. (2014). Accordingly, Boubaker et al. (2014) criticized the practice of managing larger boards by Nigerian companies which do not correspond with the sizes of corporate boards in the US and other western countries. Accordingly, Ogbechie and Koufopoulos (2010) affirm that a high demand by many significant shareholders to have a representative on the corporate board is the reason for larger boards in Nigeria. This practice is considered defective as larger boards are widely known to be less effective and could lead to a free rider problem, a state where board members play a passive role on board.

The proportion of BIND is low among Nigeria's corporate boards. The average proportion of independent directors on Nigeria corporate boards is in between 7 to 13 percent over the period of this research. The minimum percent is 0 and a maximum of 55.56 percent. However, despite the low proportion of independent directors on Nigeria's corporate boards, the numbers evidence an increased growth in the proportion of independent directors over the years. More specifically, the average value for BIND increases from 7.60 percent in 2010 to 12.76 percent in the year 2015. This increase is credited to the recent changes in the country's corporate governance process. Particularly, the provision of the latest corporate governance code 2011 stipulates that listed companies should have at least one independent director on their boards. Similarly, the provision in the CBN corporate governance code for bank and other financial institution was also instrumental in improving the independence of corporate boards. This provision requires banks to have at least two independent directors on board (Ogbechie & Koufopoulos, 2010).

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Table 111: *Descriptive Statistical Analysis*

Year	Variables	1 SRD_{it}	2 $BSIZE_{it}$	3 $BIND_{it}$	4 $BDIV_{it}$	5 $BMEET_{it}$	6 ICD_{it}	7 FPM_{it}	8 LEV_{it}	9 $CSIZE_{it}$	10 LIQ_{it}	11 $INDUS_{it}$
2010	Min	0.0854	6.0000	0.0000	0.0000	2.0000	0.3636	-0.8041	0.0000	0.1323	0.0012	0.0000
	Max	0.5244	20.0000	0.4000	0.4286	12.0000	0.8409	0.3014	2.2411	0.2309	0.1087	1.0000
	Mean	0.1246	10.0000	0.7604	0.1102	5.1500	0.5449	0.0472	0.3898	0.1729	0.0184	0.2000
	SD	0.0592	2.6481	0.0998	0.9384	1.8079	0.1118	0.1431	0.3319	0.0211	0.0176	0.4025
2011	Min	0.0854	5.0000	0.0000	0.0000	2.0000	0.3636	-0.3446	0.0000	0.1327	0.0080	0.0000
	Max	0.5244	19.0000	0.5556	0.3333	15.0000	0.8409	0.3418	1.6300	0.2326	0.1353	1.0000
	Mean	0.1247	9.6875	0.0732	0.1111	5.2875	0.5439	0.0553	0.3957	0.1745	0.0190	0.2000
	SD	0.6170	2.8666	0.1049	0.0960	2.0138	0.1160	0.1068	0.2925	0.0226	0.0213	0.4025
2012	Min	0.0854	5.0000	0.0000	0.0000	2.0000	0.3636	-0.9107	0.0000	0.1342	0.0008	0.0000
	Max	0.5244	18.0000	0.4000	0.3750	12.0000	0.8409	0.3879	1.5045	0.2262	0.0506	1.0000
	Mean	0.1294	9.6750	0.0796	0.1229	4.9875	0.5540	0.0447	0.4030	0.1755	0.0136	0.2000
	SD	0.0726	2.8049	0.0915	0.1044	1.7320	0.1160	0.1416	0.2756	0.0205	0.0103	0.4025
2013	Min	0.0854	5.0000	0.0000	0.0000	3.0000	0.3636	-0.2027	0.0260	0.1337	0.0007	0.0000
	Max	0.5244	19.0000	0.4286	0.3333	9.0000	0.8409	0.4668	1.5043	0.2254	0.0553	1.0000
	Mean	0.1315	9.7375	0.0963	0.1342	5.0000	0.5591	0.0518	0.3978	0.1767	0.0138	0.2000
	SD	0.0640	2.8673	0.0927	0.1070	1.4231	0.1138	0.0866	0.2747	0.0207	0.0103	0.4025
2014	Min	0.0854	4.0000	0.0000	0.0000	3.0000	0.3636	-0.3961	0.0116	0.1301	0.0006	0.0000
	Max	0.5244	18.0000	0.3636	0.4286	12.0000	0.8409	0.5396	1.4175	0.2254	0.1039	1.0000
	Mean	0.1385	9.8125	0.1007	0.1422	5.3000	0.5631	0.0444	0.4001	0.1772	0.0141	0.2000
	SD	0.0667	2.8644	0.0848	0.1163	1.5703	0.1125	0.1037	0.2586	0.0216	0.0157	0.4025
2015	Min	0.0854	4.0000	0.0000	0.0000	1.0000	0.3636	-1.1963	0.0150	0.1375	0.0002	0.0000
	Max	0.5244	17.0000	0.4545	0.4286	11.0000	0.8409	0.5102	2.8526	0.2267	0.1016	1.0000
	Mean	0.1448	9.8750	0.1276	0.1447	5.0875	0.5719	0.0307	0.4214	0.1776	0.0139	0.2000
	SD	0.0746	2.8701	0.1125	0.1153	1.3889	0.1067	0.1661	0.3593	0.0212	0.0143	0.4025

Notes: SRDit = sustainability disclosure, BSIZEit = board size, BINDit = board independence, BDIVit = board diversity, BMEETit = board meetings, ICDit = Intellectual capital disclosure, FPMit = financial performance, LEVit = leverage, CSIZEit = firm size, LIQit = liquidity, INDUSit = industry type, i and t refer to firm and year

Based on the descriptive analysis, the minimum and maximum value for BDIV range from 0 to 42.86 percent. The average proportion of women directors is 11.02 percent in 2010, 11.11 percent in 2011, 12.29 percent in 2012, 13.42 percent in 2013, 14.22 percent in 2014 and 2015 14.47 percent. From this analysis, it is evidence that female representation on corporate boards of Nigerian listed companies has marginally increased from 11.02 percent in 2010 to 14.47 percent in the year 2015. However, despite the increase in the proportion of female representation on Nigeria's corporate boards, the number is viewed low compared to the rapidly growing number of female representation on boards of other developed and developing countries (Ujunwa, 2012). For example, data released by GMI ratings in the year 2013 reveal that 36.1 percent of board members in Norwegian corporate boards are female, 17 percent in Dutch boards, 26.8 and 27 percent in Swedish and Finnish boards respectively. Therefore, gender representation in Nigerian corporate boards reflects the global concerns for low women representation in boardrooms.

Based on this descriptive analysis, corporate directors held a minimum of 1 meeting and a maximum of 15 meetings throughout the years of this study. The average meetings held were 5.15, 5.29, 4.99, 5.00, 5.30, 5.09 in 2010, 2011, 2012, 2013, 2014 and 2015 respectively. However, the average board meeting frequency remained mostly unchanged from 2010 to 2015. On average, 5 board meetings were held every year by the board of directors. The 5 average board meetings observed by boards of Nigerian listed companies is an indication of compliance with the provision of Nigeria's revised corporate governance code. The governance code specified that corporate board must hold a minimum of 4 board meetings in a year. Going by this analysis, Nigerian corporate boards are fully in compliance with the minimum requirement for board meetings as prescribed in the 2011 revised corporate governance code.

Meanwhile, the descriptive statistics for ICD among sampled companies was also delineated in Table III. The average disclosure score for the entire period under study indicates a sustained increased in the level of ICD among sampled companies. Specifically, the average disclosure score increased every year from 54.49 percent in 2010 to 57.19 percent in 2015. The increased in the level of ICD is anticipated considering the recent shift in countries dynamics all over the world. This in turn prompts countries to move from the erstwhile traditional product based economy to one driven by knowledge (Oba, Ibikunle, & Damagum, 2013). However, the outcome of this analysis commiserates with Mubaraq and Haji (2014) which acknowledge the increase in intellectual capital disclosure in annual reports of listed companies. Haji and Mubarak reported an increase in the average disclosure from 35.45 percent in 2006 to 41.02 percent in 2009.

Firm performance is proxy by ROA. Also from Table III, the average ROA for the full sample from the highest to the lowest is 5.53 percent in 2011, 5.18 in 2013, 4.72 in 2010, 4.47 in 2012, 4.44 in 2014 and 3.07 in 2015. The average score indicates a decrease in ROA for companies listed on NSE from 5.53 percent in 2011 to 3.07 percent in 2015. The descriptive statistics for leverage measured as the ratio of total debt divided by total asset was also presented in Table III. The mean value score for leverage ranges in between 38.98 percent to 42.14 percent over the years of the study. However, the mean score remains relatively unchanged over the years. Firm size proxy by natural logarithm of total assets indicates a minimum score of 13.01 and a maximum of 23.26 over the six years of this study. The average firm size was 17.29 in 2010, 17.45 in 2011, 17.55 in 2012, 17.67 in 2013, 17.72 in 2014 and 17.76 in 2015. Moreover, current ratio a proxy for companies' liquidity indicates a yearly average value of 0.0183, 0.0190, 0.0136, 0.0138, 0.0141 and 0.0139 for 2010, 2011, 2012, 2013, 2014 and 2015 respectively. The current ratios for the sampled companies were below the acceptable minimum standard of 2:1. This is indeed a disturbing phenomenon. Industry type is measured using a dummy, "1" is assigned to companies in the sensitive industries and "0" otherwise. As also reflected in Table III, the descriptive statistics shows a minimum value of 0 and a maximum of 1and a mean score of 2.

4.1.2 Multiple Regression Analysis

4.1.2.1 Direct Effect of Board Governance Mechanism on Sustainability Disclosure

This section presents a discussion on the relationship between board characteristics variables and sustainability disclosure. The regression result is delineated in Table IV. As depicted in the Table, the regression model exhibits a satisfactory explanatory power with an F-statistic value of 13.60 ($p = 0.000$) and a moderate R^2 value of 28.68 percent. This implies that the independent variables explained 28.68 percent of the variance in the level of sustainability disclosure. Additionally, the collinearity diagnosis performed to ensure that the data met the underlying assumption of OLS regressions indicate no severe multicollinearity problem in the regression model. As depicted in Table IV, the VIF values of all the independent variables were lower than 2. These values were far below the suggested rule of thumb of 5 recommended by field (2005).

The regression analysis for the association between board size and level of sustainability disclosure is as presented in Table IV. The regression result indicates a significant positive relationship between board size and sustainability disclosure. The result is reflected by a positive coefficient value 0.1877 (t = 3.36 p = 0.001) significant at 1 percent. The positive relationship between board size and sustainability disclosure implies that companies with the larger board size disclosed significantly more sustainability information. Therefore, increase in the size of corporate board lead to higher disclosure of sustainability information in the annual report of companies. This finding corroborates with the projected hypotheses. Hence, H_1 is supported. The finding is also consistent with the following studies, Akhtaruddin et al. (2009) Esa and Mohd-Ghazali (2012), Cheng, Oh and Jung (2012). These studies concluded that board size is a significant factor influencing the extent of sustainability disclosure in annual report of companies.

Similarly, Chang et al. (2012) also found a significant relationship between board size and sustainability. The study concluded that a larger board size is more independent and also exercise more power over companies top management. Also, larger boards have more capability and capacity to influence management to increase the disclosure of sustainability information in annual reports of companies. In the same way, Esa and Mohd-Ghazali (2012) believe that larger boards are more equip with diverse backgrounds and experience. Such boards are more exposed to dynamic and healthier discussion about corporate sustainability practices and investment in the practice. Similarly, a study conducted on a sample of 40 listed companies in Nigeria by Omobola and Uwuigbe (2013) reveals that larger boards are more diverse regarding knowledge, more effective and more likely to have a higher degree of independence. Such boards usually strike a balance between organizational actions and decisions and also between societal values and corporate legitimacy. Based on the preceding, board size is found to be a significant variable that influences the disclosure of corporate sustainability information in annual reports of Nigerian listed companies.

The regression output for board independence and sustainability disclosure was significant at 5 percent with a coefficient positive value 0.0979 (t = 2.14 p = 0.033). The positive association suggests that companies with more independent directors disclosed more sustainability information in their annual reports. The finding shows that H_2 is supported, the findings corroborate with the projected hypotheses. This result is also consistent with prior findings (Huang, 2010; Jo & Harjoto, 2012; Khan, 2010; Kaur et al., 2016; Sharif & Rashid, 2013; Zhang et al., 2013). However, the likely reason for the significant association between board independence and sustainability disclosure is that independent directors are viewed as a check and balance mechanism, which ensures that companies act in the best interest of not just owners, but to other stakeholders as well through disclosure of sustainability information (Khan, 2010). In this way, independent board members work towards ensuring a balance between the interest of shareholders, stakeholders and the generality of society. Therefore, a higher proportion of independent directors on corporate boards will lead to effective monitoring of boards, resulting in more disclosure of sustainability information in companies' annual report. Based on the evidence presented above, the present study validates the proposition that independent directors bring objectivity and external awareness to corporate boards. Therefore, the presence of more independent directors on corporate board leads to increase in sustainability disclosure and also bring transparency in companies' functioning.

Table IV: *Relationship between Board Characteristics and Sustainability Disclosure*

Variables	Exp Sign	Coef.	T-Value	P-Value	VIF
CONS	?	0.0000	0.00	1.000	-
$BSIZE_{it}$	+	0.1877	3.36	0.001	1.85
$BIND_{it}$	+	0.0979	2.14	0.033	1.75
$BDIV_{it}$	+	0.1294	3.69	0.000	1.27
$BMEET_{it}$	+	-0.0726	-1.64	0.102	1.22
FPM_{it}	+	0.1560	3.57	0.000	1.19
LEV_{it}	+	0.1500	3.14	0.002	1.15
$CSIZE_{it}$	+	0.3007	5.64	0.000	1.14
LIQ_{it}	+	-0.0332	-0.98	0.325	1.09
$INDUS_{it}$	+	0.2226	4.53	0.000	1.08

F-Statistics		13.6
Observations	480	
R^2	28.68%	
MeanVIF		1.3

Notes: $CONS_{it}$ = constant, $BSIZE_{it}$ = board size, BINDit = board independence, BDIVit = board diversity, BMEETit = board meetings, FPM_{it} = financial performance, LEV_{it} = leverage, $CSIZE_{it}$ = firm size, LIQit = liquidity, INDUSit = industry type, *i* and *t* refer to firm and year. *, **, *** denotes significant at 10%, 5%, and 1% levels respectively.

In reference to Table IV, the regression result for board diversity-sustainability relationship present a positive coefficient value 0.1294 (t = 3.69 p = 0.000) significant at 1 percent. This result suggests that a higher number of women directors in corporate boards lead to higher disclosure of sustainability information in annual report of companies. The result of this study corroborate with the proposed hypotheses formulated earlier in the study. Thus, H_3 is supported. Accordingly, the result indicates that female board members play a pivotal role in the disclosure of companies' sustainability information. The finding coincides with Setó-Pamies (2013), Bear et al. (2010), Sundarasen and Rajangam (2016), Rao and Tilt (2016). These studies unanimously conclude that participation of females in the management of companies' board positive impact the level of corporate sustainability information disclosure. Specifically, the study supports the assertions of Bear et al. (2010) which claim that female directors bring to the boards a variety of strengths, including sensitivity to companies' social and environmental disclosures. Female directors are more thoughtful to the needs of others, there are also more active and concern with issues of strategic nature, especially, issues that directly relate to companies' stakeholders (Nielsen & Huse, 2010). The result is also in line with the thought of Sundarasen and Rajangam (2016) which suggest consideration of board diversity in the future selection of board members. By so doing, the appointment of more women into companies' boards will serve as efficient diversity strategy that is likely to improve companies' performance particularly, social and environmental performance.

The analysis on Table IV shows that H_4 is not supported. The regression output reveals that board meeting was insignificantly related to sustainability disclosure. The insignificant positive coefficient value suggests that board meetings have less influence on the level of sustainability information disclosed by companies. Accordingly, the frequency of board meetings will not necessarily lead to higher disclosure of sustainability information in annual reports of Nigerian companies. A possible explanation for the insignificant relationship observed in this study may be due to the problem of taking over monitoring role of corporate boards by other factors. For example, external ownership may take the place of board monitoring actions. In such case, corporate boards may only be responsible for social and environmental issues at the policy level instead of at the point of implementation level. Therefore, no matter how frequent the board meetings are, sustainability reporting policies and practices will not be affected. Hence, board meetings will have an insignificant effect on companies' sustainability disclosure.

However, Dienes and Velte (2016) shared a similar view as the study refute the assumption that increased in board meeting frequency invariably raised the quantity of sustainability disclosure. Similarly, a study conducted by Rodríguez-Ariza et al. (2011) on 568 companies from 15 different countries claims that frequency of board meetings is certainly not an appropriate indicator of board efficiency. As such, higher board meetings will not lead to increase disclosure of corporate information. In the same vein, Giannarakis (2014) established that board meeting is not a substantial governance factor that influences the extent of sustainability information disclosure. Alhazaimeh, Palaniappan and Almsafir (2014) on their part attributed the insignificant findings to the inefficacy of board meetings which is considered far below its efficient point in most developing countries.

4.1.2.2 Indirect Effect of Board Governance Mechanism on Sustainability Disclosure

This section discusses the indirect effect of board governance mechanism on sustainability disclosure after incorporation of intellectual capital as the interactive variable. Accordingly, the multiple regression analysis results are reflected in Table V. As depicted in the Table; the F-value is 13.23 (P = 0.000) suggesting that the result statistically supports the significance of the model. Similarly, the model explanatory power is relatively high with an R^2 measure of 39.18 percent, implying that independent variables explain 39.18 percent of the variance in the dependent variable. As depicted in Table V, the inclusion of moderating variable (intellectual capital) in the relationship between board size and sustainability disclosure result in a

statistically significant coefficient value 1.0024 (t = 2.03 p = 0.043). This result indicates that there is a significant effect of the independent variable on the dependent variable when the interaction term is entered into the regression model. Accordingly, intellectual capital is confirmed to have a moderating influence on board size-sustainability disclosure relationship. Hence, H_5 is supported. Based on this result, intellectual capital strategies and processes are vital resources that could be deployed by large boards to achieve effective sustainability disclosure.

Also, the interactive effect of intellectual capital on board independence and sustainability disclosure produce a positive and statistically significant result. The coefficient value was positive and significant at 10 percent 0.8471(t = 1.90 p = 0.058). This result suggests that intellectual capital has a moderating impact on board independence and sustainability relationship. The finding suggests that the proposed hypothesis is supported. As such, H_5 is confirmed. Accordingly, the findings from this study suggest that independent directors are in a better position to evaluate and ratify companies' long-term strategies to achieve an enhanced sustainability disclosure in companies. Accordingly, independent directors can harness companies' intellectual resources to improve the disclosure of sustainability information in annual reports of companies.

Moreover, the interaction effect of intellectual capital on board diversity and sustainability disclosure produced a significant result. The coefficient value delineated in Table V indicates a significant positive value 1.2763 (t = 2.86 p = 0.004). The result of this study specifies that intellectual capital strongly moderates the relationship between board diversity and sustainability disclosure. The finding of this study supports the hypothesized relationship presented in the previous sections. Hence, H_6 is supported. Similarly, the result of the study supports the view of Al-Musali and Ismail (2015) which claims that intellectual capital related policies and strategies are effective tools for improving the effectiveness of a diverse board especially in the capacity of providing better advice and counseling on strategic issues to management.

Table V: *Moderating Effect of Intellectual Capital on the Relationship Between Board Characteristics and Sustainability Disclosure*

Variables	Exp Sign	Coef.	T-Value	P-Value
CONS	+/-	-0.0870	-2.02	0.044
$BSIZE_{it}$	+	0.4920	1.90	0.059
$BIND_{it}$	+	0.4626	2.09	0.037
$BDIV_{it}$	+	0.6401	2.88	0.004
$BMEET_{it}$	+	0.2237	1.00	0.317
ICD_{it}	+	0.3375	6.58	0.000
$ICD*BSIZE_{it}$	+	1.0024	2.03	0.043
$ICD*BIND_{it}$	+	0.8471	1.90	0.058
$ICD*BDIV_{it}$	+	1.2763	2.86	0.004
$ICD*BMEET_{it}$	-	-0.4701	-1.07	0.287
FPM_{it}	+	0.1657	4.97	0.000
LEV_{it}	+	0.1662	3.99	0.000
$CSIZE_{it}$	+	0.1122	2.38	0.018
LIQ_{it}	-	-0.0565	-1.66	0.098
$INDUS_{it}$	+	0.1554	3.91	0.000
Observations		480		
F-Statistics			13.23	
R^2		39.18%		

Notes: $CONS_{it}$ = constant, $BSIZE_{it}$ = board size, BINDit = board independence, BDIVit = board diversity, BMEETit = board meetings. FPM_{it} = financial performance, LEV_{it} = leverage, $CSIZE_{it}$ = firm size, LIQit = liquidity, INDUSit = industry type, ICD_{it} = intellectual capital disclosure, $ICD*BSIZE_{it}$, BINDit, BDIVit and BMEETit are interaction terms, *i* and *t* refer to firm and year. *, **, *** denotes significant at 10%, 5%, and 1% levels respectively.

As also presented in Table V, the finding of this study shows that intellectual capital does not moderate the relationship between board meetings and sustainability disclosure. The coefficient value was negative and insignificant -0.4701 (t = -1.07 p = 0.287) suggesting an insignificant interaction effect in the model. This implies that intellectual capital does not moderate the relationship between board meetings and sustainability disclosure. Accordingly, the result of this study has failed to support the hypotheses previously conjectured in this study. Thus, H_6 is not supported. The result from this study contradicts the popular view of Wincent et al. (2010) which proclaims that board meetings improve the innovative performance of companies and also helpful in handling uncertainties which in turn improve the sustainability programmes and initiatives of companies.

4.1.2.3 Effect of Control Variables in the Models

This section discusses the control variables employed for this study. The variables includes firm performance, leverage, firm size, industry type and liquidity. As depicted on Table IV and Table V, the relationship between firm performance and sustainability disclosure indicates a significant positive coefficient value in both direct and indirect

effect models. The significant positive coefficient indicates that financial performance is sensitive to sustainability disclosure. This implies that companies with higher financial performance disclosed more sustainability information than companies with lower financial performance. This finding corroborates with Joshi and Gao (2009), Stuebs and Sun (2015) which empirical proof financial performance to be an important factor in the disclosure of sustainability information in annual reports of companies. Similarly, leverage was found to have a significant positive influence on sustainability disclosure. The coefficient value was positive and significant at 1 percent in model 1 (t = 3.14 p = 0.002) and model 2 (t = 3.99 p = 0.000). This suggests that companies with higher leverage value are more likely to disclose higher sustainability information. Previous studies with similar findings include Esa and Mohd-Ghazali (2012), Juhmani (2014), Saleh, Zulkifli and Muhamad (2012). Therefore, companies with highly leveraged capital structure are likely to disclose higher sustainability information to portray to the outside world their commitment to the interest of all stakeholders. This step will likely lessen the fears of debt-holders about managers' opportunistic activities.

The analysis on Table IV shows that firm size has a significant influence on the level of sustainability information disclose in annual reports of companies. The coefficient value was positive and significant at 1 percent in the direct effect model (t = 5.64 p = 0.000). Similar results were reported for the indirect effect model as delineated in table V. The coefficient value was also positive and significant at 5 percent (t = 2.38 p = 0.018). This suggests that bigger companies disclose more sustainability information than smaller ones. The result of this study corresponds with the findings in bulk of sustainability disclosure literature. Studies such as Ferguson, Lam, and Lee (2002), Abd Rahman, Zain and Al-Haj (2011), Barakat, Perez, and Ariza (2014) concluded that the larger the size of companies, the more likely such companies would deploy resources for sustainability disclosure initiatives. In the same manner, the influence of industry type on sustainability disclosure was positive and significant at 1 percent in both models. This implies that industry membership plays a prominent role in the disclosure of sustainability information in annual reports of companies. This result is consistent with Camfferman and Cooke (2002), Kansal, Joshi, and Batra (2014) and Albitar (2015). These studies collectively agreed that industry type is a significant determinant of companies' sustainability disclosure. Therefore, companies' chances of disclosing sustainability information largely depend on their industrial affiliations.

Finally, the coefficient value of liquidity was negative and statistically insignificant in the direct effect model -0.0332 (t = -0.98 p = 0.325), but negative and statistically significant in the indirect model -0.0565 (t = -1.66 p = 0.098). However, both results contradict the projected hypotheses in this study. The finding goes contrary to the popular views in sustainability disclosure literature that attributes higher corporate liquidity with increased sustainability disclosure. The negative coefficient values evidenced in this study suggest that liquidity is either having an inverse or non-sensitive response to the disclosure of sustainability information in annual reports of companies. Therefore, companies with high liquidity level will not necessarily disclose higher sustainability information. This finding is consistent with Lan et al. (2013), Al-Ajmi, Al-Mutairi and Al-Duwaila (2015) which found liquidity to be insignificant related to sustainability disclosure.

5.1 Conclusion and Recommendations

The goal of this study was to examine the extent and determinants of sustainability disclosure in Nigeria. Overall, the practice of sustainability reporting in Nigerian business environment is still in its embryonic stage. This extent of sustainability information disclosure was relatively low compared to other developed and developing countries. Besides, Nigerian listed companies disclose more of socially related information as compared to environmental disclosures. Other findings from this study suggest that board size, board independence and board diversity were significant determinants of sustainability disclosure. In contrast, board meetings do not seem to be a significant factor that determines the level of sustainability disclosure. Also, the moderating effect of intellectual capital on the relationship between board size, board independence, board diversity and sustainability disclosure indicates a significant positive value. However, intellectual capital does not seem to moderate the relationship between board meetings and sustainability disclosure. Therefore, despite the effective in intellectual capital policies and strategies, it will not be able to strengthen the relationship between board meetings and sustainability disclosure. Overall, the findings from this study provide a new and fresh perspective on the relationship between board governance mechanisms and sustainability disclosure in Nigeria.

Accordingly, the findings have both theoretical and practical implications. This study contributed theoretically by expanding the scope of prior literature on corporate governance mechanisms and sustainability disclosure. The study extends the relationship through the introduction of intellectual capital as an intervening variable. To the best of the

researchers' knowledge, this is the first study that tested these relationships empirically. The findings suggest that intellectual capital is a variable that strengthens the relationship between board governance mechanisms and sustainability disclosure. Accordingly, this study had extended the direction of the relationship between board governance mechanisms and sustainability disclosure beyond what was documented in the prior literature. The study also extended the perspective of both stakeholder theory and RBV theory by considering the two theories as underpinning assumptions in the study. Particularly, the study extends the horizon of RBV theory by demonstrating how the theory explains the indirect relationship between board governance variables and sustainability disclosure through a third variable intellectual capital.

From a practical viewpoint, the findings of this study have implications for management of listed companies in Nigeria. Corporate management needs to have a re-think and re-strategies their sustainability reporting policies to improve sustainability reporting practice in Nigeria. Particularly, the result of this study indicates that board governance mechanisms have a strong and great influence on the extent of sustainability disclosure. This therefore provides an avenue for companies to identify corporate governance attributes that are vital in enhancing their sustainability reporting practices. In this manner, companies can channel their attention on areas where sustainability reporting exposures can provide a more strategic advantage in creating cordial relationships with diverse stakeholders. Similarly, the findings from this study put forth the need to incorporate greater transparency in internal governance structures of Nigerian companies. This can be achieve by way of reinforcing changes in companies' laws relating to corporate governance practices and putting in place effective compliance mechanisms such as monitoring, benchmarking, regular audit. This in turn, enhance the disclosure of companies' sustainability information.

Also, the result of this study underscores the need for a proactive attention towards sustainability reporting. Management of Nigerian listed companies are advised to take the issue of sustainability more seriously to meet the expectation of their numerous stakeholders. Companies should imbibe the culture of being more socially responsible to the environment in which they operate since socially responsible companies have a more enhanced brand image and more reputable in the eyes of consumers. To regulatory authorities, this study recommends that Nigerian government through its regulatory agencies to collaborate with the private sector with the view to establish a sustainability reporting framework and database. This step will go a long way in guiding social and environmental reporting in the country. Similarly, government regulation, enforcement and also environmental impact assessment should also be accorded more serious attention by relevant government agencies to strengthen sustainability reporting practice in the country.

Nevertheless, the results of this study should be interpreted in the light of the following limitations. First, the researchers used an unweighted disclosure index in scoring the items of sustainability in annual reports of companies. This method differs from the weighted disclosure index which assigns weight to each item of sustainability based on prominence. Therefore, future research may wish to adopt the weighted approach or both approaches to increase the reliability of the result. Secondly, this study utilized a quantitative research approach which involves extraction of information from annual reports or stand-alone reports of listed companies in the analysis. Future research can undertake a mixed-method study which will involve both quantitative and qualitative research approaches. A survey method using either questionnaires or interviews can be deployed to complement the quantitative approach. This may likely help in enriching the interpretation of quantitative research and possibly assist in unraveling other qualitative factors that may influence the disclosure of sustainability information in companies' annual reports.

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APPENDIX 1A

Table 5.6

Overview of Social Disclosure in Sampled Annual Reports

ID	Main Categories	Sub-Categories 1 Score (%)	2 Score (%)	3 Score (%)	4 Score (%)
1	Employment	479 (99.8)	70 (14.5)	4 (0.83)	-
2	Labor/Mgt Relations	398 (82.9)	-	-	-
3	Occupational Health and Safety	71(14.8)	45 (9.4)	9 (1.9)	467 (97.3)
4	Training and Education	20 (4.2)	479 (99.8)	29 (6.0)	-
5	Diversity & Equal Opportunity	460 (95.8)	-	-	-
6	Equal Remuneration for Women and Men	48 (10.0)	-	-	-
7	Supplier Assessment for Labor Practices	13 (2.7)	-	-	-
8	Labor Practices Grievances Mechanisms	6 (1.3)	-	-	-
9	Investment	6 (1.3)	11 (2.3)	-	-
10	Non-Discrimination	468 (97.5)	-	-	-
11	Freedom of Association & Collective Bargaining	39 (8.1)	-	-	-
12	Child Labor	16 (3.3)	-	-	-
13	Forced or Compulsory Labor	10 (2.1)	-	-	-
14	Security Practices	34 (7.1)	-	-	-
15	Indigenous Rights	13 (2.7)	-	-	-
16	Assessment	7 (1.5)	-	-	-
17	Supplier Human Rights Assessment	0 (0.0)	2 (0.4)	-	-
18	Human Rights Grievances Mechanisms	15 (3.1)	-	-	-
19	Local Communities	479 (99.8)	6 (1.3)	-	-
20	Anti-corruption	12 (2.5)	226 (47.1)	25 (5.2)	-
21	Public Policy	414 (86.3)	-	-	-
23	Compliance	14 (2.9)	-	-	-
24	Supplier Assessment for Impacts on Society	0 (0.0)	0 (0.0)	-	-

25	Grievance Mechanisms for Impacts on Society	11 (2.3)	-	-	-
26	Customers Health and Safety	67 (14.0)	0 (0.0)	-	-
27	Product & Service Labelling	19 (4.0)	0 (0.0)	3 (0.6)	-
28	Marketing Communications	2 (0.42)	2 (0.42)	-	-
29	Customers Privacy	1 (0.2)	-	-	-
30	Compliance	7 (1.5)	-	-	-

Notes: 1, 2, 3 and 4 are number of items in each sub-category of social disclosure score based on the GRI G4 checklist, refer to Appendix A for the detail description of each sub-category.

APPENDIX 1B

Table 5.7

Overview of Environmental Disclosure in Sampled Annual Reports

ID	Main Categories	Sub-Categories						
		1	2	3	4	5	6	7
1	Materials	83(17.3)	33 (6.9)	-	-	-	-	-
2	Energy	45 (9.4)	14 (2.9)	17(3.5)	92 (19.1)	14(2.9)	-	-
3	Water	19 (4.0)	16 (3.3)	28(5.8)	-	-	-	-
4	Biodiversity	3 (0.6)	32 (6.6)	3 (0.6)	6 (1.2)	-	-	-
5	Emissions	19 (4.0)	7 (1.5)	7 (1.5)	8 (1.6)	43(9.0)	7(1.5)	15(3.1)
6	Effluents and Waste	22 (4.6)	29 (6.0)	0 (0.0)	0 (0.0)	7 (1.5)	-	-
7	Products and Services	26 (5.4)	12 (2.5)	-	-	-	-	-
8	Compliance	8 (1.7)	-	-	-	-	-	-
9	Transportation	19 (4.0)	-	-	-	-	-	-
10	Overall	27 (5.6)	-	-	-	-	-	-
11	Supplier Environmental Assessment	8 (1.6)	3 (0.6)	-	-	-	-	-
12	Environmental Grievances Mechanism	1 (0.2)	-	-	-	-	-	-

Notes: 1, 2, 3, 4, 5, 6 and 7 are number of items in each sub-category of environmental disclosure based on the GRI G4 checklist, refer to Appendix A for the detail description of each sub-category.

Intellectual capital Disclosure Checklist

S/N	Internal Capital	External Capital	Human Capital
1	Patent	Business collaboration	Number of staff
2	Copyright	Joint ventures	Employee education and training
3	Trademarks	Favorable contracts	Employees know-how
4	Corporate culture	Brands	Work related knowledge
5	Corporate philosophy	Brand recognition	Expertise
6	Leadership	Brand development	Professional qualification
7	Information systems (technology)	Goodwill	Academic qualifications
8	Financial relations	Distribution channels	Age and gender
9	Innovation	Market share	Geographical distribution (type/number)
10	Research and development	Information about customers (type/number)	Safety and health at work
11		Customer services	Employee succession path training (managerial role)
12		Customer loyalty	Knowledge sharing
13		Customer retention	Employee retention
14		Customer satisfaction	Employee engagement
15		Customer feedback	Motivation
16		Customers knowledge	Employee satisfaction survey
17			Employee communication
18			Entrepreneur spirit

APPENDIX II